I claim:

1. An active layer in a semiconductor light emitting device, the active layer comprising at least one quantum well including layers of a semiconductor alloy under mechanical stress interspersed with layers of stabilizing material.

2. The invention of claim 1 wherein the device is one of a vertical cavity laser, an edge emitting laser, or a light emitting diode.

3. The invention of claim 1 wherein the layers of stabilizing material are nearly lattice matched to substrate material used in the device, wherein the nearly lattice matched layers of stabilizing material serve as mechanical stabilizers for the layers of semiconductor alloy under mechanical stress to prevent them from relaxing.

4. The invention of claim 3 wherein the device is one of a vertical cavity laser, an edge emitting laser, or a light emitting diode.

5. The semiconductor laser according to claim 3, wherein the active layer comprises a plurality of quantum wells.

6. The invention of claim 5, wherein the substrate type material comprises GaAs.

7. The invention of claim 5, wherein the layers of semiconductor alloy includes one of InGaAs, GaAsSb, or InGaAsSb.

8. The invention of claim 5, wherein the plurality of quantum wells are about 80Å - 250Å thick.

9. The invention of claim 5, wherein the layers of stabilizing material are about 9.5Å - 11.2Å thick.

10. The semiconductor laser according to claim 5, wherein the layers of semiconductor alloy are about 24Å thick

11. A semiconductor light emitting device having an active layer comprised of more than one quantum well, each including layers of a semiconductor alloy under mechanical stress interspersed with layers of a stabilizing material, and a substrate type material being lattice mismatched to the semiconductor alloy in a first direction and lattice mismatched to the stabilizing material in the opposite the direction, wherein the layers of stabilizing material being lattice mismatched serve as mechanical stabilizers for the semiconductor alloy layers to prevent the semiconductor alloy layers from relaxing.

11. The invention of claim 10 wherein the semiconductor light emitting device is one of a vertical cavity laser, an edge emitting laser, or a light emitting diode.

12. The invention of claim 11, wherein the substrate type material comprises GaAs.

13. The semiconductor laser according to claim 11, wherein the semiconductor alloy is comprised of one of InGaAs, GaAsSb, or InGaAsSb.

15. The semiconductor laser according to claim 11, wherein the quantum wells are about 80Å - 250Å thick.

16. The semiconductor laser according to claim 11, wherein the quantum well mechanical stabilizer layers are about 9.5Å - 11.2Å thick.

18. The semiconductor laser according to claim 11, wherein the alloy layers are about 24Å thick.

19. An active layer in a semiconductor laser comprising:

at least one quantum well, the at least one quantum well including semiconductor alloy layers under mechanical stress and stabilizing material layers, wherein the stabilizing material layers are interspersed between the semiconductor alloy layers and serve as mechanical stabilizers for the semiconductor alloy layers;

barrier layers sandwiching the active layer; and

mirror layers disposed outside of the barrier layers.

20. The invention of claim 20 wherein the semiconductor laser is one of a vertical cavity laser, an edge emitting laser, or a light emitting diode.

21. The invention of claim 19, wherein the semiconductor alloy layers are comprised of one of InGaAs, GaAsSb, or InGaAsSb, the substrate is comprised of GaAs.

22. The invention of claim 21, wherein the first and second mirror layers are comprised of AlGaAs.

23. The semiconductor laser according to claim 22, wherein the quantum wells are about 80Å - 250Å thick.

24. The semiconductor laser according to claim 22, wherein the quantum well mechanical stabilizer layers are about 9.5Å - 11.2Å thick.

25. The semiconductor laser according to claim 22, wherein the alloy layers are about 24Å thick.